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Abstract of the Disclosure

A fuel gas-steam reformer assembly, preferably an autothermal reformer assembly, for use in a fuel cell power plant, includes a catalyst bed which is formed from a cylindrical monolithic open cell foam body. The foam body is preferably formed from a high temperature material such as stainless steel, nickel alloys and iron-aluminum alloys, or from a ceramic material. The foam body includes open cells or pores which are contained within the metal or ceramic lattice. The lattice is coated with a porous wash coat which serves as a high surface area substrate onto which catalysts used in the reformer are applied. The foam body has an inlet end into which a mixture of fuel, steam and air is fed to begin the reforming process. An inlet portion of the foam body may be provided with an iron oxide and/or noble metal catalyst and the remainder of the foam body may be provided with a copper, copper/zinc and/or noble metal catalyst. An advantage of including an autothermal reformer in a fuel processing system is the compactness of the autothermal reformer. The inclusion of the foam catalyst bed rather than the traditional catalyzed pellet bed allows the reformer to be made even more compact and light weight.

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